

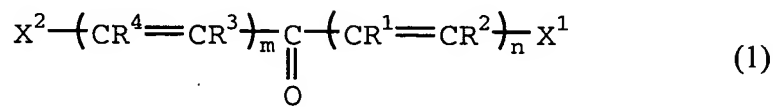
AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

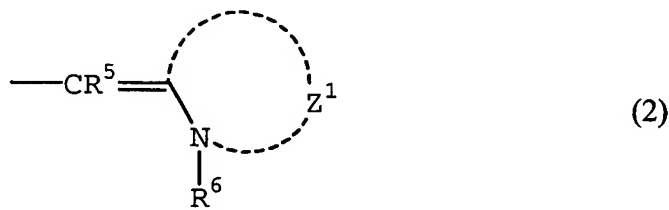
What is claimed is:

1. (currently amended): A two-photon absorbing polymerizable composition comprising at least a two-photon absorbing compound, a polymerization initiator and a polymerizable compound, said composition being photopolymerizable upon non-resonant two-photon absorption, wherein said two-photon absorbing compound is a ~~methine dye~~ cyanine dye represented by the following formula (3), a merocyanine dye represented by the following formula (4), an oxonol dye represented by the following formula (5) or a dye compound represented by the following formula (1):

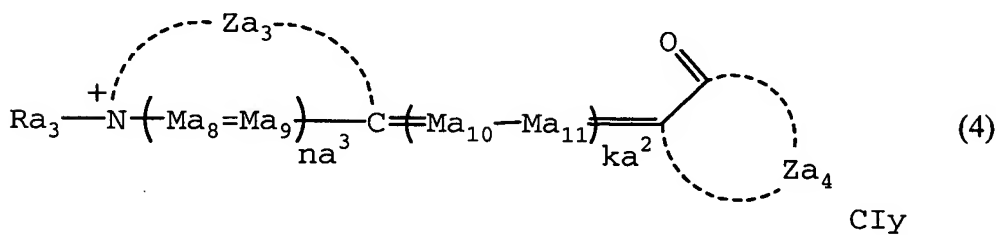
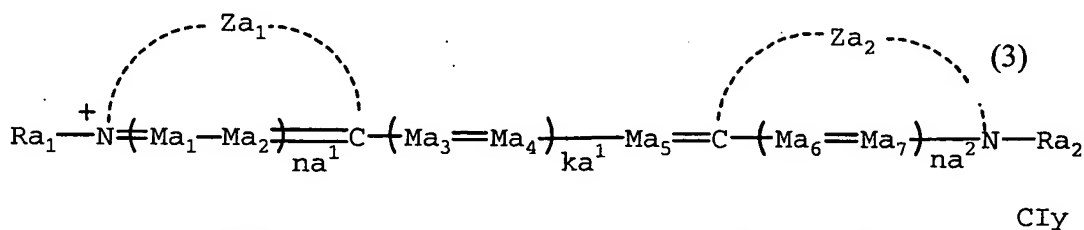


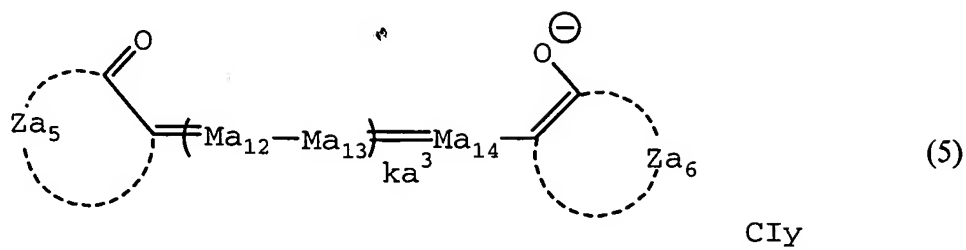
wherein R¹, R², R³ and R⁴ each independently represents a hydrogen atom or a substituent and some of R¹, R², R³ and R⁴ may combine with each other to form a ring; n and m each independently represents an integer of 0 to 4 and when n and m each is 2 or more, the plurality of

R¹s, R²s, R³s or R⁴s may be the same or different, provided that n and m are not 0 at the same time; and X¹ and X² each independently represents an aryl group, a heterocyclic group or a group represented by formula (2):



wherein R⁵ represents a hydrogen atom or a substituent, R⁶ represents a hydrogen atom, an alkyl group, an alkenyl group, an aryl group or a heterocyclic group, and Z¹ represents an atomic group for forming a 5- or 6-membered ring;





wherein Za_1 , Za_2 and Za_3 each represents an atomic group for forming a 5- or 6-membered nitrogen-containing heterocyclic ring, Za_4 , Za_5 and Za_6 each represents an atomic group for forming a 5- or 6-membered ring, Ra_1 , Ra_2 and Ra_3 each independently represents a hydrogen atom, an alkyl group, an alkenyl group, an aryl group or a heterocyclic group, Ma_1 to Ma_{14} each independently represents a methine group, which may have a substituent or may form a ring together with another methine group, na^1 , na^2 and na^3 each represents 0 or 1, ka^1 and ka^3 each represents an integer of 0 to 3, provided that when ka^1 is 2 or more, multiple Ma_3 s or Ma_4 s may be the same or different and when ka^3 is 2 or more, multiple Ma_{12} s or Ma_{13} s may be the same or different, ka^2 represents an integer of 0 to 8, provided that when ka^2 is 2 or more, multiple Ma_{10} s or Ma_{11} s may be the same or different, CI represents an ion for neutralizing the electric charge, and y represents a number necessary for the neutralization of electric charge.

2. (canceled).
3. (canceled).
4. (canceled).

5. (original): The two-photon absorbing polymerizable composition as claimed in claim [[3]] 1, wherein in the compound represented by formula (1), X^1 and X^2 each is a group represented by formula (2).

6. (currently amended): The two-photon absorbing polymerizable composition as claimed in claim 1, wherein the polymerization initiator is 1) ~~ketone-base~~ ketone containing polymerization initiator, 2) an organic ~~peroxide-base~~ peroxide containing polymerization initiator, 3) a ~~bisimidazole-base~~ bisimidazole containing polymerization initiator, 4) a trihalomethyl-substituted ~~triazine-base~~ triazine containing polymerization initiator, 5) a diazonium ~~salt-base~~ salt containing polymerization initiator, 6) a diaryliodonium ~~salt-base~~ salt containing polymerization initiator, 7) a sulfonium ~~salt-base~~ salt containing polymerization initiator, 8) a ~~triphenylalkylborate-base~~ triphenylalkylborate containing polymerization initiator, 9) a diaryliodonium organic boron ~~complex-base~~ complex containing polymerization initiator, 10) a sulfonium organic boron ~~complex-base~~ complex containing polymerization initiator, 11) a cationic two-photon absorbing ~~compound and~~ organic boron complex-base complex containing polymerization initiator, 12) an anionic two-photon absorbing ~~compound and~~ onium salt complex-base complex containing polymerization initiator, 13) a metal arene ~~complex-base~~ complex containing polymerization initiator or 14) a sulfonic acid ester-base polymerization initiator.

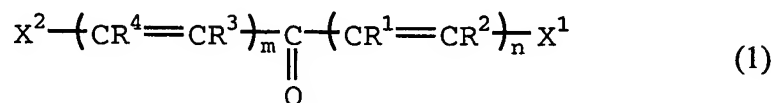
7. (currently amended): The two-photon absorbing polymerizable composition as claimed in claim 1, wherein the polymerization initiator contains a polymerization initiator capable of generating at least one radical and the polymerizable compound contains a radical polymerizable compound capable of undergoing polymerization under the action of at least one radical.

8. (currently amended): The two-photon absorbing polymerizable composition as claimed in claim 1, wherein the polymerization initiator contains a polymerization initiator capable of generating an acid without generating at least one radical and the polymerizable compound contains a cationic polymerizable compound capable of undergoing polymerization under the action of at least one acid.

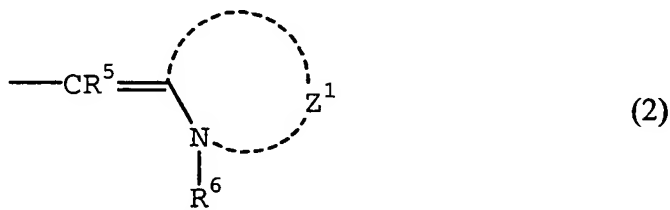
9. (currently amended): The two-photon absorbing polymerizable composition as claimed in claim 1, wherein the polymerization initiator contains a polymerization initiator capable of generating both at least one radical and at least one acid and the polymerizable compound contains either one or both of a radical polymerizable compound capable of undergoing polymerization under the action of at least one radical and a cationic polymerizable compound capable of undergoing polymerization under the action of at least one acid.

10. (original): A two-photon absorbing polymerizable composition comprising at least a two-photon absorbing compound and a polymerizable compound, said composition being photopolymerizable upon non-resonant two-photon absorption, wherein said two-photon absorbing compound is a ~~methine dye~~ cyanine dye represented by the following formula (3), a

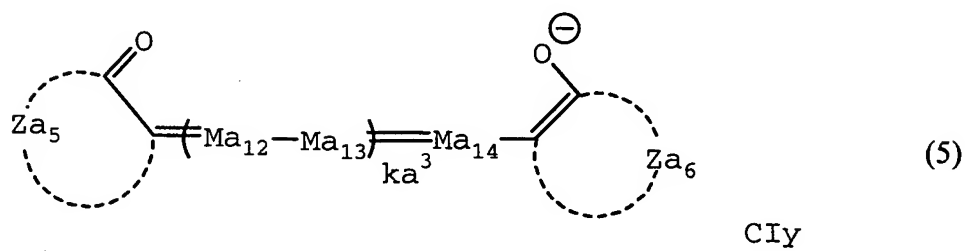
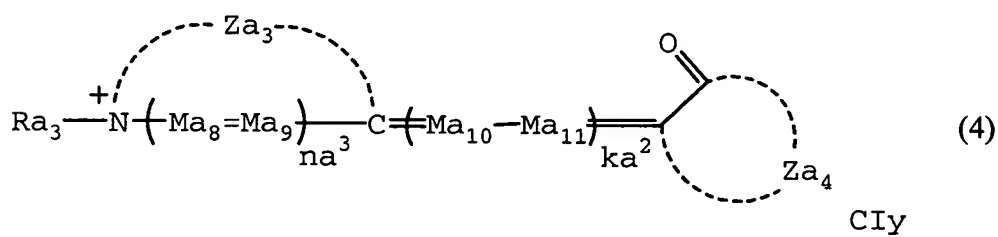
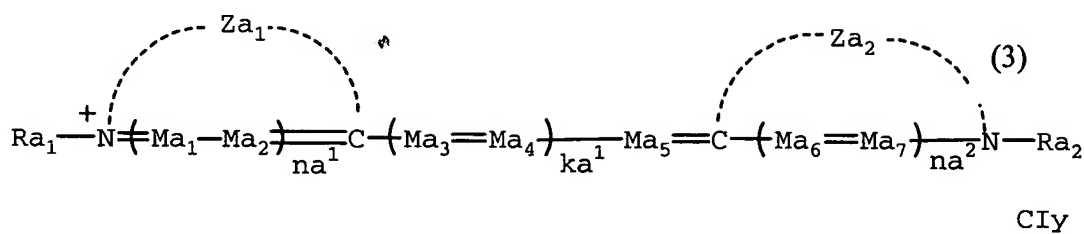
merocyanine dye represented by the following formula (4), an oxonol dye represented by the following formula (5) or a dye compound represented by the following formula (1):



wherein R¹, R², R³ and R⁴ each independently represents a hydrogen atom or a substituent and some of R¹, R², R³ and R⁴ may combine with each other to form a ring; n and m each independently represents an integer of 0 to 4 and when n and m each is 2 or more, the plurality of R¹'s, R²'s, R³'s or R⁴'s may be the same or different, provided that n and m are not 0 at the same time; and X¹ and X² each independently represents an aryl group, a heterocyclic group or a group represented by formula (2):



wherein R⁵ represents a hydrogen atom or a substituent, R⁶ represents a hydrogen atom, an alkyl group, an alkenyl group, an aryl group or a heterocyclic group, and Z¹ represents an atomic group for forming a 5- or 6-membered ring;



wherein Za_1 , Za_2 and Za_3 each represents an atomic group for forming a 5- or 6-membered nitrogen-containing heterocyclic ring, Za_4 , Za_5 and Za_6 each represents an atomic group for forming a 5- or 6-membered ring, Ra_1 , Ra_2 and Ra_3 each independently represents a hydrogen atom, an alkyl group, an alkenyl group, an aryl group or a heterocyclic group, Ma_1 to Ma_{14} each independently represents a methine group, which may have a substituent or may form a ring together with another methine group, na^1 , na^2 and na^3 each represents 0 or 1, ka^1 and ka^3 each represents an integer of 0 to 3, provided that when ka^1 is 2 or more, multiple Ma_3 s or Ma_4 s may

be the same or different and when ka^3 is 2 or more, multiple $Ma_{12}s$ or $Ma_{13}s$ may be the same or different, ka^2 represents an integer of 0 to 8, provided that when ka^2 is 2 or more, multiple $Ma_{10}s$ or $Ma_{11}s$ may be the same or different, CI represents an ion for neutralizing the electric charge, and y represents a number necessary for the neutralization of electric charge.

11. (currently amended): The two-photon absorbing polymerizable composition as claimed in claim 10, wherein ~~the two-photon absorbing compound is a cyanine dye represented by formula (3), a merocyanine dye represented by formula (4), an oxonol dye represented by formula (5), or a compound represented by formula (1) where~~ wherein in the compound represented by formula (1) X^1 and X^2 each is a group represented by formula (2).

12. (original): A polymerization process comprising irradiating the two-photon absorbing polymerizable composition claimed in claim 1 with a laser ray at a wavelength being longer than the linear absorption band of the two-photon absorbing compound and not having linear absorption, and causing a polymerization reaction by using the two-photon absorption induced.

13. (original): A polymerization process comprising irradiating the two-photon absorbing polymerizable composition claimed in claim 10 with a laser ray at a wavelength being longer than the linear absorption band of the two-photon absorbing compound and not having linear absorption, and causing a polymerization reaction by using the two-photon absorption induced.

14. (original): A three-dimensional optical recording medium comprising the two-photon absorbing polymerizable composition claimed in claim 1.

15. (original): A three-dimensional optical recording medium comprising the two-photon absorbing polymerizable composition claimed in claim 10.

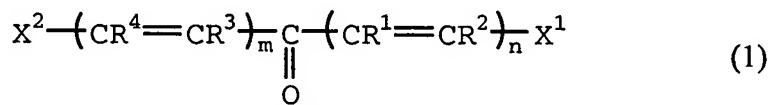
16. (original): A stereolithography composition comprising the two-photon absorbing polymerizable composition claimed in claim 1.

17. (original): A stereolithography composition comprising the two-photon absorbing polymerizable composition claimed in claim 10.

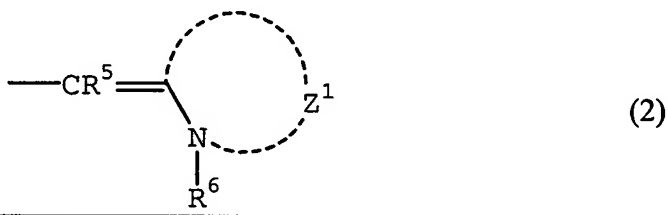
18. (currently amended): A two-photon absorbing polymerizable composition comprising at least two-photon absorbing compound, a polymerization initiator and a polymerizable compound, said composition being photopolymerizable upon non-resonant two-photon absorption,

wherein the polymerization initiator is 1) an organic ~~peroxide-base~~ peroxide containing polymerization initiator, 2) a ~~bisimidazole-base~~ bisimidazole containing polymerization initiator, 3) a trihalomethyl-substituted ~~triazine-base~~ triazine containing polymerization initiator, 4) a diazonium ~~salt-base~~ salt containing polymerization initiator, 5) a sulfonium ~~salt-base~~ salt containing polymerization initiator, 6) a ~~borate-base~~ borate containing polymerization initiator, 7) a diaryliodonium organic boron ~~complex-base~~ complex containing polymerization initiator, 8) a sulfonium organic boron ~~complex-base~~ complex containing polymerization initiator, 9) a cationic two-photon absorbing compound organic boron ~~complex-base~~ complex containing polymerization initiator, 10) an anionic two-photon absorbing compound onium salt ~~complex-~~

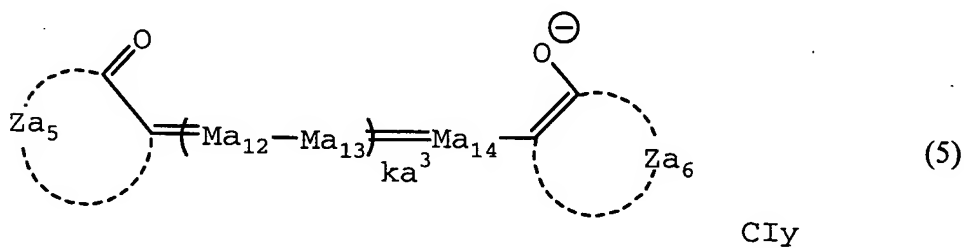
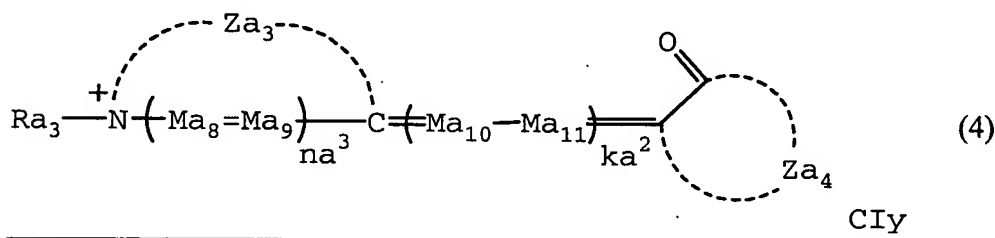
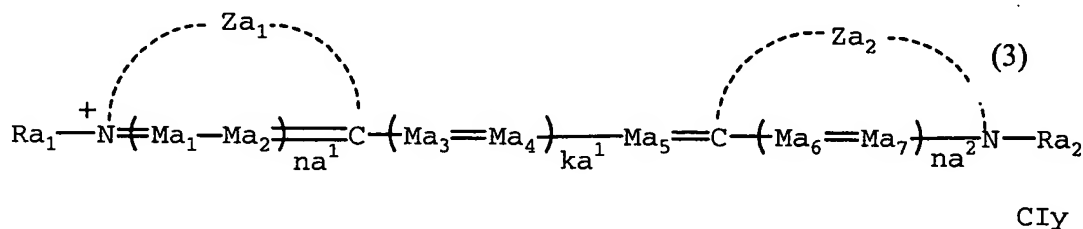
~~base complex containing~~ polymerization initiator, 11) a metal arene ~~complex-base complex~~ containing polymerization initiator or 12) a sulfonic acid ester-base polymerization initiator and
wherein said two-photon absorbing compound is a cyanine dye represented by the
following formula (3), a merocyanine dye represented by the following formula (4), an oxonol
dye represented by the following formula (5) or a dye compound represented by the following
formula (1):



wherein R¹, R², R³ and R⁴ each independently represents a hydrogen atom or a substituent and
some of R¹, R², R³ and R⁴ may combine with each other to form a ring; n and m each
independently represents an integer of 0 to 4 and when n and m each is 2 or more, the plurality of
R¹s, R²s, R³s or R⁴s may be the same or different, provided that n and m are not 0 at the same
time; and X¹ and X² each independently represents an aryl group, a heterocyclic group or a group
represented by formula (2):



wherein R^5 represents a hydrogen atom or a substituent, R^6 represents a hydrogen atom, an alkyl group, an alkenyl group, an aryl group or a heterocyclic group, and Z^1 represents an atomic group for forming a 5- or 6-membered ring;



wherein Za_1 , Za_2 and Za_3 each represents an atomic group for forming a 5- or 6-membered nitrogen-containing heterocyclic ring, Za_4 , Za_5 and Za_6 each represents an atomic group for forming a 5- or 6-membered ring, Ra_1 , Ra_2 and Ra_3 each independently represents a hydrogen atom, an alkyl group, an alkenyl group, an aryl group or a heterocyclic group, Ma_1 to

Ma₁₄ each independently represents a methine group, which may have a substituent or may form a ring together with another methine group, na¹, na² and na³ each represents 0 or 1, ka¹ and ka³ each represents an integer of 0 to 3, provided that when ka¹ is 2 or more, multiple Ma₃s or Ma₄s may be the same or different and when ka³ is 2 or more, multiple Ma₁₂s or Ma₁₃s may be the same or different, ka² represents an integer of 0 to 8, provided that when ka² is 2 or more, multiple Ma₁₀s or Ma₁₁s may be the same or different, CI represents an ion for neutralizing the electric charge, and y represents a number necessary for the neutralization of electric charge.